

REMARKS

Claims 1-6 are pending in this application. By this Amendment, claim 1 is amended to distinguish the subject matter over the references cited in the Office Action.

No new matter is added to the application by this Amendment. Support for the language added to claim 1 can be found throughout the original application as filed, for example, at paragraphs [0025]-[0034].

Reconsideration of the application is respectfully requested.

I. Rejections under 35 U.S.C. §102 and §103

A. Shea et al.

Claims 1-6 were rejected under 35 U.S.C. §102(a) as allegedly being anticipated by U.S. Patent No. 6,459,358 to Shea et al. The rejection is respectfully traversed.

The Patent Office alleges that Shea et al. discloses all of the features recited in claims 1-6.

Nowhere does Shea et al. disclose a thermistor body having a rubber-modified epoxy resin in which fine particles of liquid rubber of polybutylene (BR) or butadiene/acrylonitrile (NBR) having a carboxyl group, hydroxyl group or epoxy group at a terminal, or polybutadiene (PBR) having a carboxyl group or hydroxyl group at a terminal, are dispersed as recited in claim 1.

Shea et al. merely discloses use of epoxidized polybutadiene (PBR) PBD 600, a PBR having an epoxy group at a terminal (see Table 1). However, the rubber-modified epoxy resin as set forth in claim 1 does not include PBR having an epoxy group at a terminal. Thus, nowhere does Shea et al. disclose a rubber-modified epoxy resin in which fine particles of liquid rubber of polybutylene (BR) or butadiene/acrylonitrile (NBR) having a carboxyl group, a hydroxyl group or an epoxy group at a terminal or polybutadiene (PBR) having a carboxyl group or hydroxyl group at a terminal, are dispersed as required by claim 1.

In view of the foregoing, Shea et al. fails to disclose each and every limitation of independent claim 1, and thus cannot anticipate claim 1, or any of the additional features recited in the dependent claims thereof. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

B. Smith et al.

Claims 1-6 were rejected under 35 U.S.C. §102(a) as allegedly being anticipated by U.S. Patent No. 6,375,867 to Smith et al. The rejection is respectfully traversed.

The Patent Office alleges that Smith et al. discloses all of the features recited in claims 1-6.

Nowhere does Smith et al. disclose a thermistor body having an epoxy resin having a linear structure which consists of any divalent organic groups expressed by formulas (iii) or (v) combined to at least two glycidyl ether groups as recited in claim 1.

Smith et al. merely discloses that "the thermosetting epoxy resin is selected from the group consisting of bisphenol A epoxy resins, novolac epoxy resins and mixtures thereof and the epoxy reactive diluent is selected from the group consisting of phenyl glycidyl ether, butyl glycidyl ether, alkyl glycidyl ethers containing about 5 to 12 carbons, vinyl cyclohexene dioxide, endodicyclopentadiene dioxide, octylene oxide and neopentylglycol diglycidyl ether" (see col. 2, lines 30-35). However, the alkyl glycidyl ether of the thermosetting epoxy resin disclosed in Smith et al. has only one glycidyl ether group. On the contrary, the epoxy resin set forth in claim 1 has a linear structure that consists of any divalent organic groups expressed by the formulas (iii) or (v) combined to at least two glycidyl ether groups.

Therefore, nowhere does Smith et al. disclose an epoxy resin having a linear structure that consists of any divalent organic groups expressed by the following formulas (iii) or (v) combined to at least two glycidyl ether groups as required by claim 1.

In view of the foregoing, Smith et al. fails to disclose each and every limitation of independent claim 1, and thus cannot anticipate claim 1, or any of the additional features recited in the dependent claims thereof. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

C. Cole et al.

Claims 1-6 were rejected under 35 U.S.C. §102(a) as allegedly being anticipated by U.S. Patent No. 6,362,722 to Cole et al. The rejection is respectfully traversed.

The Patent Office alleges that Cole et al. discloses all of the features recited in claims 1-6.

Nowhere does Cole et al. disclose a thermistor body having an epoxy resin having a linear structure which consists of any divalent organic groups expressed by formulas (iii) or (v) combined to at least two glycidyl ether groups: $(CH_2)_n$, (iii); and $CH_2C(C_2H_5)(CH_3)CH_2$, (v), wherein n in the formula (iii) is an integer between 1 and 20 as recited in claim 1.

Cole et al. merely discloses an electrically conductive composite material having low viscosity polyglycol epoxy (see Abstract). Applicant asserts that the low viscosity polyglycol epoxy corresponds to formulas, such as $[CH(CH_3)CH_2O]_n$; $(CH_2CH_2O)_n$; and $[(CH_2)_mO]_n$. However, the divalent organic groups recited in claim 1 are, namely $(CH_2)_n$ and $H_2C(C_2H_5)(CH_3)CH_2$. Therefore, nowhere does Cole et al. disclose a thermistor body having an epoxy resin having a linear structure which consists of any divalent organic groups expressed by formulas (iii) or (v) combined to at least two glycidyl ether groups: $(CH_2)_n$, (iii); and $CH_2C(C_2H_5)(CH_3)CH_2$, (v), wherein n in the formula (iii) is an integer between 1 and 20 as required by claim 1.

In view of the foregoing, Cole et al. fails to disclose each and every limitation of independent claim 1, and thus cannot anticipate claim 1, or any of the additional features

recited in the dependent claims thereof. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

D. Handa

Claims 1-6 were rejected under 35 U.S.C. §102(a) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as allegedly being obvious over, U.S. Patent No. 6,452,476 to Handa. The rejection is respectfully traversed.

The Patent Office alleges that Handa discloses all of the features recited in claims 1-6. Alternatively, the Patent Office alleges that Handa does not teach flexible epoxy resin as required by the claims. However the Patent Office asserts that it would have been obvious to one of ordinary skill in the art to understand the copolymerization of the epoxy with a thermosetting resins would yield a flexible epoxy resin.

Nowhere does Handa disclose a thermistor body having a urethane-modified epoxy resin obtained when a urethane prepolymer obtained by a reaction between polyether polyol and polyisocyanate is reacted with an epoxy resin having a hydroxyl group within a molecule as recited in claim 1.

Handa merely teaches an epoxy resin, an unsaturated polyester resin, a polyimide, a polyurethane, a phenol resin, and a silicone resin used to form the thermosetting polymer matrix. See col. '5, lines 23-26. Further, Handa teaches that "it is particularly preferable to use the epoxy resin and unsaturated polyester resin" and "two or more resins may be polymerized together into a polymer." See col. 7, lines 24 and 25. Nowhere does Handa disclose a urethane-modified epoxy resin obtained when a urethane prepolymer obtained by a reaction between polyether polyol and polyisocyanate is reacted with an epoxy resin having a hydroxyl group within a molecule as required by claim 1.

Moreover, as recited in claim 1, an isocyanate group from polyisocyanate is reacted with a hydroxyl group of epoxy resin to produce a urethane-modified epoxy resin. Nowhere

does Handa teach or suggest reacting an isocyanate group with a hydroxyl group to produce the urethane-modified resin as set forth in claim 1. Applicant submits that one of ordinary skill in the art would not have looked to the teachings of Handa to achieve the urethane-modified epoxy resin as required by claim 1.

In view of the foregoing, Handa fails to disclose each and every limitation of independent claim 1, or any of the additional features recited in the dependent claims thereof. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

E. Yasuko et al.

Claims 1-6 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Japanese Ref. No. JP 06-089802 to Yasuko et al. (hereinafter "Yasuko et al. '802"). The rejection is respectfully traversed.

The Patent Office alleges that Yasuko et al. '802 discloses all of the features recited in claims 1-6.

Nowhere does Yasuko et al. '802 disclose a thermistor body having a flexible epoxy resin selected from at least one of: an epoxy resin having a linear structure which consists of any divalent organic groups expressed by formulas (iii) or (v) combined to at least two glycidyl ether groups: $(CH_2)_n$, (iii); and $CH_2C(C_2H_5)(CH_3)CH_2$, (v), wherein n in the formula (iii) is an integer between 1 and 20; a rubber-modified epoxy resin wherein fine particles of liquid rubber of polybutylene (BR) or butadiene/acrylonitrile (NBR) having a carboxyl group, hydroxyl group or epoxy group at a terminal, or polybutadiene (PBR) having a carboxyl group or hydroxyl group at a terminal, are dispersed; an epoxy resin containing fine particles of silicone rubber having a reactive group at a terminal; an epoxy resin having a siloxane bond (-Si-O-Si- bond) within a molecule; a urethane-modified epoxy resin obtained when a urethane prepolymer obtained by a reaction between polyether polyol and polyisocyanate is reacted with an epoxy resin having a hydroxyl group within a molecule; an epoxidized

polyolefin; a polythiol-based epoxy resin; and a polyol-based epoxy resin as recited in claim 1.

Yasuko et al. '802 merely discloses a thermosetting resin having a base resin and a curing agent, wherein an epoxy resin, polyimide unsaturated polyester, silicon, polyurethane, and phenol resin is the base resin (see paragraph [0021]). Yasuko et al. '802 discloses that an epoxy resin, such as Ciba-Geigy CY205, a common bisphenol A type epoxy resin, is used as a base resin. See paragraph [0021]. However, nowhere does Yasuko et al. '802 disclose a flexible epoxy resin selected from at least one of the epoxy resin having a linear structure; the rubber-modified epoxy resin; the epoxy resin containing fine particles of silicone rubber; the epoxy resin having a siloxane bond within a molecule; the urethane-modified epoxy resin; the epoxidized polyolefin; the polythiol-based epoxy resin; and the polyol-based epoxy resin as specifically set forth in claim 1.

In view of the foregoing, Yasuko et al. '802 fails to disclose each and every limitation of independent claim 1, and thus cannot anticipate claim 1, or any of the additional features recited in the dependent claims thereof. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

F. Hiroshi et al.

Claims 1-6 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Japanese Ref. No. JP 05-198404 to Hiroshi et al.. The rejection is respectfully traversed.

The Patent Office alleges that Hiroshi et al. discloses all of the features recited in claims 1-6.

Nowhere does Hiroshi et al. disclose a thermistor body having a flexible epoxy resin selected from at least one of: an epoxy resin having a linear structure which consists of any divalent organic groups expressed by formulas (iii) or (v) combined to at least two glycidyl ether groups: $(CH_2)_n$, (iii); and $CH_2C(C_2H_5)(CH_3)CH_2$, (v), wherein n in the formula (iii) and

is an integer between 1 and 20; a rubber-modified epoxy resin wherein fine particles of liquid rubber of polybutylene (BR) or butadiene/acrylonitrile (NBR) having a carboxyl group, hydroxyl group or epoxy group at a terminal or polybutadiene (PBR) having a carboxyl group or hydroxyl group at a terminal are dispersed; an epoxy resin containing fine particles of silicone rubber having a reactive group at a terminal; an epoxy resin having a siloxane bond (-Si-O-Si- bond) within a molecule; a urethane-modified epoxy resin obtained when a urethane prepolymer obtained by a reaction between polyether polyol and polyisocyanate is reacted with an epoxy resin having a hydroxyl group within a molecule; an epoxidized polyolefin; a polythiol-based epoxy resin; and a polyol-based epoxy resin as recited in claim 1.

Hiroshi et al. merely discloses that the thermosetting resin has an epoxy resin, a polyimide, an unsaturated polyester, a silicon, a polyurethane and a phenol resin. See paragraph [0013]. Hiroshi et al. sets forth that an epoxy resin, such as Ciba-Geigy Araldite F, is used in the thermosetting resin. However, Araldite F consists of an epoxy resin as a main agent and a polyamideamine as a hardening agent. Nowhere does Hiroshi et al. disclose a flexible epoxy resin selected from at least one of the epoxy resin having a linear structure; the rubber-modified epoxy resin; the epoxy resin containing fine particles of silicone rubber; the epoxy resin having a siloxane bond within a molecule; the urethane-modified epoxy resin; the epoxidized polyolefin; the polythiol-based epoxy resin; and the polyol-based epoxy resin as specifically required in claim 1.

In view of the foregoing, Hiroshi et al. fails to disclose each and every limitation of independent claim 1, and thus cannot anticipate claim 1, or any of the additional features recited in the dependent claims thereof. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

G. Yasuko et al.

Claims 1-6 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Japanese Ref. No. JP 05-198403 to Yasuko et al. (hereinafter "Yasuko et al. '403"). The rejection is respectfully traversed.

The Patent Office alleges that Yasuko et al. '403 discloses all of the features recited in claims 1-6.

Nowhere does Yasuko et al. '403 disclose a thermistor body having a flexible epoxy resin selected from at least one of: an epoxy resin having a linear structure which consists of any divalent organic groups expressed by formulas (iii) or (v) combined to at least two glycidyl ether groups: $(CH_2)_n$, (iii); and $CH_2C(C_2H_5)(CH_3)CH_2$, (v), wherein n in the formulas (iii) is an integer between 1 and 20; a rubber-modified epoxy resin wherein fine particles of liquid rubber of polybutylene (BR) or butadiene/acrylonitrile (NBR) having a carboxyl group, hydroxyl group or epoxy group at a terminal, or polybutadiene (PBR) having a carboxyl group or hydroxyl group at a terminal, are dispersed; an epoxy resin containing fine particles of silicone rubber having a reactive group at a terminal; an epoxy resin having a siloxane bond ($-Si-O-Si-$ bond) within a molecule; a urethane-modified epoxy resin obtained when a urethane prepolymer obtained by a reaction between polyether polyol and polyisocyanate is reacted with an epoxy resin having a hydroxyl group within a molecule; an epoxidized polyolefin; a polythiol-based epoxy resin; and a polyol-based epoxy resin as recited in claim 1.

Similarly to Hiroshi et al., Yasuko et al. '403 discloses that the thermosetting resin has an epoxy resin, a polyimide, an unsaturated polyester, a silicon, a polyurethane and a phenol resin. See paragraph [0013]. Yasuko et al. '403 sets forth that an epoxy resin, such as Ciba-Geigy Araldite F, is used in the thermosetting resin. As described above, Araldite consists of an epoxy resin as a main agent and a polyamideamine as a hardening agent. Nowhere does

Yasuko et al. '403 disclose a flexible epoxy resin selected from at least one of the epoxy resin having a linear structure; the rubber-modified epoxy resin; the epoxy resin containing fine particles of silicone rubber; the epoxy resin having a siloxane bond within a molecule; the urethane-modified epoxy resin; the epoxidized polyolefin; the polythiol-based epoxy resin; and the polyol-based epoxy resin as specifically recited in claim 1.

In view of the foregoing, Yasuko et al. '403 fails to disclose each and every limitation of independent claim 1, and thus cannot anticipate claim 1, or any of the additional features recited in the dependent claims thereof. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

H. Baigrie et al.

Claims 1-3 were rejected under 35 U.S.C. §102(a) as allegedly being anticipated by U.S. Patent No. 5,250,228 to Baigrie et al. The rejection is respectfully traversed.

The Patent Office alleges that Baigrie et al. discloses all of the features recited in claims 1-3.

Nowhere does Baigrie et al. disclose a thermistor body having an epoxy resin having a linear structure which consists of any divalent organic groups expressed by formulas (iii) or (v) combined to at least two glycidyl ether groups: $(CH_2)_n$, (iii); and $CH_2C(C_2H_5)(CH_3)CH_2$, (v), wherein n in the formula (iii) is an integer between 1 and 20 as recited in claim 1.

Baigrie et al. merely discloses that suitable commercially available flexible epoxy resins include polyglycol diepoxies, DER 732 and 736 from Dow Chemical Company. See col. 4, lines 4-6. Applicant asserts that polyglycol diepoxies correspond to formulas such as $[CH(CH_3)CH_2O]_n$; $(CH_2CH_2O)_n$; and $[(CH_2)_mO]_n$. However, the divalent organic groups recited in claim 1 are $(CH_2)_n$ and $H_2C(C_2H_5)(CH_3)CH_2$. Therefore, nowhere does Baigrie et al. disclose a thermistor body having an epoxy resin having a linear structure which consists of any divalent organic groups expressed by the following formulas (iii) or (v) combined to at

least two glycidyl ether groups: $(CH_2)_n$, (iii); and $CH_2C(C_2H_5)(CH_3)CH_2$, (v), wherein n in the formula (iii) is an integer between 1 and 20 as required by claim 1.

In view of the foregoing, Baigrie et al. fails to disclose each and every limitation of independent claim 1, and thus cannot anticipate claim 1, or any of the additional features recited in the dependent claims thereof. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

II. Rejection under the Doctrine of Obviousness-Type Double Patenting

Claims 1, 2 and 4 are provisionally rejected under the doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1 and 11 of copending U.S. Patent Application Serial No. 11/092,643 (hereinafter "the '643 application").

As discussed above, all of the prior art rejections are believed overcome.

As discussed in the MPEP, because the '643 application has a later filing date than the present application, Applicant submits that provisional rejection should be withdrawn and the present application should be allowed to issue. MPEP §804(I)(B)(1) states:

If a "provisional" nonstatutory obviousness-type double patenting (ODP) rejection is the only rejection remaining in the earlier filed of the two pending applications, while the later-filed application is rejectable on other grounds, the examiner should withdraw that rejection and permit the earlier-filed application to issue as a patent without a terminal disclaimer. If the ODP rejection is the only rejection remaining in the later-filed application, while the earlier-filed application is rejectable on other grounds, a terminal disclaimer must be required in the later-filed application before the rejection can be withdrawn.

Accordingly, withdrawal of this provisional rejection is respectfully requested.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-6 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Date: December 15, 2006

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